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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,072	09/13/2005	Halvor Oien	2004_2015A	7473
513 7590 12/10/2007 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			EXAMINER YOUNG, NATASHA E	
			ART UNIT 1797	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/519,072

**Applicant(s)**

OIEN ET AL.

**Examiner**

Natasha Young

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-19 and 21-24 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____  |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :12/23/2004, 09/13/2005, 01/30/2006.

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities: The words "levelled" (see page 5, line 20) and "Deepth" in Table 2 (see page 8) are misspelled.

Appropriate correction is required.

### ***Claim Objections***

Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 18 does not further limit claim 17, since the segmented "wave breaker" would have end walls.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what is meant by the phrase "similar material" (see line 3).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12-18 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fareid et al (WO 91/08982) in view of Ward et al (WO 98/28073).

Regarding claim 12, Fareid et al teaches a support system for catalyst gauzes in an ammonia oxidation burner, where the catalyst gauzes (1) and possibly support screens are being supported by ceramic fillings (3) and/or catalyst contained in a burner

basket with metal walls (4) and a perforated bottom plate (5) (see Abstract and page 1, 2<sup>nd</sup> paragraph).

Fareid et al does not teach a "wave breaker" (9,11) is fixed to the metal wall and/or the outer part/periphery of the bottom plate.

Fareid et al teaches the catalyst and catchment material comprises a woven gauze made into a pack and secured clamped to the burner structure and a support gauze of woven or knitted nonprecious metal is placed between the main support and the catalyst catchment pack (see page 1, 1<sup>st</sup>-2<sup>nd</sup> paragraphs).

Ward et al teaches a monolithic support in the form of a honeycomb or foam of a ceramic material such as alumina or zirconia, or a monolithic structure formed from an iron/aluminum alloy and may be used with their passages oriented at preset angles to the gas flow direction (see page 5, lines 22-28), and a metal trap that may be eliminated (see page 6, lines 3-6).

Ward et al does not teach securing the catalytic support to the burner basket and/or the outer part/periphery of the bottom plate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a catalytic support where gauze and possibly support screens are being supported by ceramic filling and/or catalyst contained in a

burner basket with metal and perforated bottom plate, wherein a "wave breaker" is fixed to the metal wall and/or the outer part/periphery of the bottom plate, since such a structure is for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish.

Claims 13-15 depend on claim 12 such that the reasoning used to reject claim 12 will be used to reject the dependent portions of the claims.

Regarding claim 13, Fareid teaches ceramics fillings (see page 1, 1<sup>st</sup> paragraph).

Fareid et al does not teach a support system wherein the "wave breaker" is filled with ceramic fillings/catalyst or similar material to obtain the same flow resistance as the filling material of the bed.

Ward et al teaches the monolithic structure employed in a random packed bed (see page 5, lines 22-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a catalytic support where gauze and possibly support screens are being supported by ceramic filling and/or catalyst contained in a burner basket with metal and perforated bottom plate, wherein a "wave breaker" is fixed to the metal wall and/or the outer part/periphery of the bottom plate, since such a

structure for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish.

Regarding claim 14, Fareid et al does not teach a support system wherein the "wave breaker" is a triangular shaped ridge (11).

Ward et al teaches teach a support system of a honeycomb or foam of a ceramic material or a monolithic structure with their passage oriented at present angles to the gas flow direction (see page 5, lines 22-28) such that the support acts as a "wave breaker". Because the support is angled it sloped and may rest in a metal trap it is interpreted as a triangular ridge.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a catalytic support where gauze and possibly support screens are being supported by ceramic filling and/or catalyst contained in a burner basket with metal and perforated bottom plate, wherein a "wave breaker" is fixed to the metal wall and/or the outer part/periphery of the bottom plate, since such a structure for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish.



Regarding claim 15, Fareid et al does not teach a support system wherein the "wave breaker" is a smooth or perforated sheet (9) arranged at an angle of 10-60° to the wall.

Ward et al teaches a support system of a honeycomb or foam of a ceramic material or a monolithic structure with their passage oriented at present angles to the gas flow direction (see page 5, lines 22-28) such that the support acts as a smooth or perforated "wave breaker".

Ward et al does not teach the "wave breaker" arranged at an angle of 10-60° to the wall.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the "wave breaker" at an angle of 10-60° to the wall, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a catalytic support where gauze and possibly support screens are being supported by ceramic filling and/or catalyst contained in a burner basket with metal and perforated bottom plate, wherein a "wave breaker" is

fixed to the metal wall and/or the outer part/periphery of the bottom plate, since such a structure for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish.

Claim 16 depends on claim 15 such that the reasoning used to reject claim 15 will be used to reject the dependent portions of the claim.

Regarding claim 16, Fareid et al does not teach wherein the angle is 25-35° (see page 5, lines 22-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a catalytic support where gauze and possibly support screens are being supported by ceramic filling and/or catalyst contained in a burner basket with metal and perforated bottom plate, wherein a "wave breaker" is fixed to the metal wall and/or the outer part/periphery of the bottom plate, since such a structure for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish.

Claim 17 depends on claim 13 such that the reasoning used to reject claim 13 will be used to reject the dependent portions of the claim.

Regarding claim 17, Fareid et al teaches segmented porous alumina catalytic support (see page 5, 2<sup>nd</sup>-3<sup>rd</sup> paragraphs).

Ward et al teaches coated gauze, mesh, or pad is bonded to the another layer of coated gauze, mesh, or pad by heat (see page 5, lines 10-14), a monolithic support in the form of a honeycomb or foam of a ceramic material such as alumina or zirconia, or a monolithic structure formed from an iron/aluminum alloy and may be used with their passages oriented at preset angles to the gas flow direction (see page 5, lines 22-28), and a metal trap that may be eliminated (see page 6, lines 3-6).

Ward et al does not teach securing the catalytic support to the burner basket and/or the outer part/periphery of the bottom plate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a "wave breaker" made of segments, since such a structure for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish and for improved gas distribution resulting from segmenting the "wave breaker" (see Fareid et al page 5, 1<sup>st</sup> paragraph).

Claim 18 depends on claim 17 such that the reasoning used to reject claim 17 will be used to reject the dependent portions of the claim.

Regarding claim 18, Fareid et al teaches segmented porous alumina catalytic support (see page 5, 2<sup>nd</sup>-3<sup>rd</sup> paragraphs).

Ward et al teaches a monolithic support in the form of a honeycomb or foam of a ceramic material such as alumina or zirconia, or a monolithic structure formed from an iron/aluminum alloy and may be used with their passages oriented at preset angles to the gas flow direction (see page 5, lines 22-28), and a metal trap that may be eliminated (see page 6, lines 3-6).

Ward et al does not teach securing the catalytic support to the burner basket and/or the outer part/periphery of the bottom plate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

Claim 19 depends on claim 12 such that the reasoning used to reject claim 12 will be used to reject the dependent portions of the claim.

Regarding claim 19, Fareid et al does not teach a support system wherein the "wave breaker" is a honeycomb structure.

Ward et al teaches a monolithic support in the form of a honeycomb or foam of a ceramic material such as alumina or zirconia, or a monolithic structure formed from an iron/aluminum alloy and may be used with their passages oriented at preset angles to the gas flow direction (see page 5, lines 22-28), and a metal trap that may be eliminated (see page 6, lines 3-6).

Ward et al does not teach securing the catalytic support to the burner basket and/or the outer part/periphery of the bottom plate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a catalytic support where gauze and possibly support screens are being supported by ceramic filling and/or catalyst contained in a burner basket with metal and perforated bottom plate, wherein a "wave breaker" is fixed to the metal wall and/or the outer part/periphery of the bottom plate, since such a structure for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish.

Regarding claim 21, Fareid et al teaches a method of reducing movement of ceramic material and avoiding tearing of catalyst gauzes in an ammonia oxidation burner where the catalyst gauzes and possibly support screens are being supported by ceramic fillings and possibly a catalyst on a perforated plate or contained in a burner basket with metal walls and perforated bottom plate (see Abstract; page 1, 2<sup>nd</sup> paragraph; and pages 3, 1<sup>st</sup> complete paragraph through page 4, 1<sup>st</sup> complete paragraph).

Fareid et al does not teach a "wave breaker" is fixed to the metal wall and/or the outer part/periphery of the bottom plate of the burner basket and moves the ceramic material together with the metal wall during expansion.

Fareid et al teaches the catalyst and catchment material comprises a woven gauze made into a pack and secured clamped to the burner structure and a support gauze of woven or knitted nonprecious metal is placed between the main support and the catalyst catchment pack (see page 1, 1<sup>st</sup>-2<sup>nd</sup> paragraphs).

Ward et al teaches a monolithic support in the form of a honeycomb or foam of a ceramic material such as alumina or zirconia, or a monolithic structure formed from an iron/aluminum alloy and may be used with their passages oriented at preset angles to the gas flow direction (see page 5, lines 22-28), and a metal trap that may be eliminated (see page 6, lines 3-6).

Ward et al does not teach securing the catalytic support to the burner basket and/or the outer part/periphery of the bottom plate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a catalytic support where gauze and possibly support screens are being supported by ceramic filling and/or catalyst contained in a burner basket with metal and perforated bottom plate, wherein a "wave breaker" is fixed to the metal wall and/or the outer part/periphery of the bottom plate, since such a structure for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish.

Claim 22 depends on claim 21 such that the reasoning used to reject claim 21 will be used to reject the dependent portions of the claim.

Regarding claim 22, Fareid et al does not teach the method wherein the "wave breaker" is formed like a triangular shaped ridge, a smooth or perforated sheet or a honeycomb structure.

Ward et al teaches a monolithic support in the form of a honeycomb or foam of a ceramic material such as alumina or zirconia, or a monolithic structure formed from an iron/aluminum alloy and may be used with their passages oriented at preset angles to the gas flow direction (see page 5, lines 22-28), and a metal trap that may be eliminated (see page 6, lines 3-6).

Ward et al does not teach securing the catalytic support to the burner basket and/or the outer part/periphery of the bottom plate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

Claim 23 depends on claim 15 such that the reasoning used to reject claim 15 will be used to reject the dependent portions of the claim.

Regarding claim 23, Fareid et al teaches segmented porous alumina catalytic support (see page 5, 2<sup>nd</sup>-3<sup>rd</sup> paragraphs).

Ward et al teaches a monolithic support in the form of a honeycomb or foam of a ceramic material such as alumina or zirconia, or a monolithic structure formed from an

iron/aluminum alloy and may be used with their passages oriented at preset angles to the gas flow direction (see page 5, lines 22-28), and a metal trap that may be eliminated (see page 6, lines 3-6).

Ward et al does not teach securing the catalytic support to the burner basket and/or the outer part/periphery of the bottom plate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a "wave breaker" made of segments, since such a structure for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish and for improved gas distribution resulting from segmenting the "wave breaker" (see Fareid et al page 5, 1<sup>st</sup> paragraph).

Claim 23 depends on claim 15 such that the reasoning used to reject claim 15 will be used to reject the dependent portions of the claim.

Regarding claim 23, Fareid et al teaches segmented porous alumina catalytic support (see page 5, 2<sup>nd</sup>-3<sup>rd</sup> paragraphs).

Ward et al teaches a monolithic support in the form of a honeycomb or foam of a ceramic material such as alumina or zirconia, or a monolithic structure formed from an iron/aluminum alloy and may be used with their passages oriented at preset angles to



the gas flow direction (see page 5, lines 22-28), and a metal trap that may be eliminated (see page 6, lines 3-6).

Ward et al does not teach securing the catalytic support to the burner basket and/or the outer part/periphery of the bottom plate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Fareid et al with the teachings of Ward et al to use ceramic or metal monolithic structures at preset angle instead of the metal gauze, mesh, or pad for improved gas flow distribution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try to construct a "wave breaker" made of segments, since such a structure for improved gas distribution which the angled monolithic structure, or "wave breaker", would accomplish and for improved gas distribution resulting from segmenting the "wave breaker" (see Fareid et al page 5, 1<sup>st</sup> paragraph).

#### ***Allowable Subject Matter***

Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Sloping top of "wave breaker" could not be found in a prior art search.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natasha Young whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Thurs 7:30am-6:00pm.

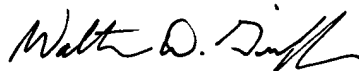
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NY



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SUPERVISORY PATENT EXAMINER